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ABSTRACT

The University of California, Santa Cruz is an environment in which many programs and practices have been revised, reinforced, or newly created. From its beginning in 1965, Santa Cruz has encouraged new approaches to learning. Some of the innovations that have taken place at the university include: (1) general course requirements are minimal; (2) certain courses are televised to student lounges due to classroom overflow; (3) a community studies program of 6 months off-campus field work has been instituted; (4) an environmental studies program is underway; and (5) several interdisciplinary majors are available to students. The effectiveness of the innovation has yet to be tested for its long-run effect on students, but applications to Santa Cruz have been four times the capacity of the campus. (HS)

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# INNOVATION AT SANTA CRUZ - MORE THAN TINKERING

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MARCH 16, 1971

Innovation at Santa Cruz - More than Tinkering *

Santa Cruz represents more than an experiment or a tinkering with traditional programs. It is a bold attempt by a public university to improve the quality of undergraduate education. It is itself an innovation that consists of many innovations. Therefore, Santa Cruz is best understood as an "idea" or an environment in which many factors interact to provide an overall improved undergraduate education.

Innovation at the University of California, Santa Cruz has not been confined to altering or renewing courses of instruction. Indeed, many courses of instruction are comparable in form and content to those offered in other selective universities. There is, instead, an overall change in the significance and form of an undergraduate education.

The importance of undergraduate education at Santa Cruz has been reflected in basic changes in structure, instruction, and in the planned growth of the campus. These changes have attracted a faculty and student body that create a unique environment for flexibility, new approaches to learning, and an integration of academic and non-academic programs.

It is presumptive, at this time, to state that Santa Cruz is an <u>effective</u> innovation or that it has <u>effective</u> innovations in its undergraduate curriculum. A program of systematic evaluation has yet to be undertaken and until data of a longitudinal nature are obtained it will be difficult to assert empirically that Santa Cruz is any more effective with undergraduates than other institutions. There is, however, no doubt that Santa Cruz has been effective in attracting and in retaining undergraduates of high academic ability who seem to thrive in the environment of the campus.

*A paper presented at the 1971 Conference of the American Association for Higher Education, Chicago.

Innovations that contribute to the overall attractiveness, and hopefully to the effectiveness, of Santa Cruz are considered under five general categories: Organizational Structure, Courses of Study, Approaches to Learning, Integrated Non-Credit Study, Encouragement for Innovation.

Organizational Structure:

The most significant feature of Santa Cruz is its collegiate structure. Since its opening in 1965, five small, self-contained, co-educational, liberal arts colleges each with between 600 and 800 undergraduates have been built. The colleges share a common commitment to quality undergraduate teaching, close relationships among students and faculty, and the maintenance of a vital academic community that remains small while the campus grows large.

Each college is a "mini-campus" with its own distinctive architecture which includes patios, walkways, classrooms, lounges, dining hall, faculty offices, a small library, recreational facilities, and student housing for two-thirds of its undergraduates. Each college is headed by a Provost who lives on campus. The Fellows or faculty members of each college come from many disciplines and with the Provost plan a program of courses which gives the college a particular distinctiveness or intellectual "center of gravity". Each college has its own traditions and precedents but each college is continually evolving and changing as students and faculty enter and depart.

The colleges are not, however, solely or even mainly responsible for undergraduate instruction. Each college Fellow is simultaneously a member of a board of studies or discipline which extends across all colleges. Boards of studies set criteria for disciplinary majors, initiate graduate programs, and safeguard the maintenance of high academic standards for the disciplines. Academically, boards of studies are somewhat analogous to departments on other campuses but there are

major administrative differences. Boards of studies are clustered into three Divisions - Humanities, Social Sciences, Natural Sciences - and each Division is headed by a Vice Chancellor who has administrative and budgetary responsibility for all of the boards of studies within the Division. Furthermore, secretarial services are provided by a secretarial pool which is financed campus-wide. Services are provided wherever faculty are located.

This dual structure is supported by a budgetary device which places one half of each faculty salary in a college and the other half in a division. Unlike the University of California, San Diego, Kent, Lancaster, La Trobe, and other institutions that have developed colleges, UCSC colleges have money to "buy" faculty time for undergraduate work. A faculty member is both a Fellow of a college and a member of a board of studies within a division. The collegiate structure provides the benefits of a small college and permits faculty and students in close association to shape and to influence their own environment. The collegiate structure also facilitates interdisciplinary learning and research by bringing together members of various disciplines. It also creates a feeling of belonging and intimacy for both students and faculty. The divisional structure, on the other hand provides the advantages and depth of study available in a university. It also supports and encourages excellence in scholarship and the search for new knowledge. Students normally take courses in several boards of studies and in other colleges as well as in their own college.

Neither the budgetary device of splitting appointments nor the fact that the same individuals are simultaneously part of a college and part of a board of studies eliminates tension between the two structures. College programs are less clearly defined, are usually interdisciplinary, and often enter areas quite outside the expertise of some faculty members. Full participation in the academic program and the social life of the college is difficult to sustain. Disciplinary programs are more clearly defined, are judged by external standards, and have an uncontrollable tendency to proliferate. Actual experience at Santa Cruz has shown that colleges offer about 17% of the total number of

courses while boards of studies offer 77% of the total. (The remaining 6% are physical education and recreation courses which are non-credit).

This dual structure, aimed at capturing the best features of the small college and of the university, has been nurtured and supported by being able to start from scratch, on a magnificant 2000 acre site and by the recruitment of a faculty singularly devoted to undergraduate teaching and to the "idea" of Santa Cruz. It is within this structure and with the expectation that Santa Cruz would do things differently that new ideas and new programs have emerged.

Courses of Study:

General course requirements are minimal. "American History and Institutions" and "Subject A: English Composition" are required by the University of California but can be satisfied in a number of ways. Campus requirements are intended to assure a breadth of knowledge and each student is expected to take a minimum of three courses in each of the three divisions - Humanities, Social Sciences, Natural Sciences. Until this year, there had been a language requirement as well and with its removal, the necessity of the breadth requirements is being reconsidered. An analysis of the course work taken by the 1971 graduates of Stevenson College indicates clearly that most students take many more courses in each of the divisions than is demanded by the requirement. With the exception of humanities majors who might not take the minimum number of natural science courses, the requirements do not seem necessary to assure breadth of study. 1/ An analysis of a campus-wide sample of graduates is anticipated to determine the necessity of imposing breadth requirements.

Colleges are permitted to establish requirements beyond those already mentioned. Cowell College requires, at both the freshman and sophomore levels, a three quarter sequence of courses called, "World Civilization".

1/ Willson, F.M.Glenn. Analysis of Course Work Taken by Stevenson College Graduates, 1969-70. Mimeographed report.

Stevenson College requires all freshmen to take a course called, "Culture and Society". College V requires freshmen to take a "Workshop" for any two of the three freshmen quarters. The "Workshops" have two aspects: a studio where the student creates art and a seminar where the student reads and writes about his art. Neither Crown College nor Merrill College impose requirements on their students.

The boards of studies offer courses and majors not unlike programs at other institutions. Innovation in either content or method has been difficult to achieve. Small class size and close relations between students and faculty have been equated with and substituted for innovation. Of all courses offered since 1965, 85% have had less than 30 students. The first signs of innovation have occurred in certain introductory science courses where student enrollment outstrips the single largest classroom on campus - 250 seats.

The overflow from Chemistry I of the fall quarter was accommodated in a special section during the winter quarter. Instead of pursuing the traditional lecture, discussion, laboratory pattern, the instructor devised an approach that was to capitalize on the use of students as teachers and resources to one another. The class met as a whole once each week to discuss a statement of the week's objectives, appropriate reading, and an assigned problem. Students met in leaderless groups of six an additional two times a week. Each member of the group had to prepare a ten minute presentation of material relevant to the week's objectives to share with other members of the group. Each group member was expected to critique each of these student presentations with the critiques being turned in to the instructor weekly so he could obtain some feeling for how the groups were progressing. Each group member was also expected to bring to the group a problem that he was unable to understand or a question on the week's work that needed elaboration. To support this student-oriented process of teaching-learning, the instructor made himself available to the groups through extensive office hours and by permitting students to call him at home when they needed assistance. Mid-term tests indicate a level of learning comparable to the traditional mode but with a somewhat higher

student involvement in the subject matter.

The board of studies in Biology has not divided into the traditional specialized areas. Instead, it provides a broad perspective of all the biological sciences. Much greater emphasis is placed on student advising because most majors in biology pursue a personally tailored program. Faculty serve as resources for students. Laboratory experience is not required for non-majors so labs have been separated from the elementary courses. Those who do take labs find that they are inquiry oriented with students raising questions, doing background reading, studying the problem, and suggesting research approaches to get answers to the questions.

Introductory Biology has also been confronted with more students than the largest hall can accommodate. As a result, the lectures are being televised to the overflow in residence hall lounges and to individual student rooms. The video-tapes produced this year will be used next year in each of the colleges in place of the large lecture and biologists affiliated with each college will serve as resources within the college for discussion groups and other activities related to the course.

Community Studies is a program that has several innovative aspects. First, it is an interdisciplinary field of study and there are no full-time faculty appointments in community studies. At this time, there are three appointees whose title includes "community studies" but the other half of their appointments are in sociology, literature, and politics. Other faculty associated with the program include 3 sociologists, 2 psychologists, 2 geographers, 2 political scientists, and one each in anthropology, biology, and economics.

The second innovation in this program is that it includes 6 months, full-time, off-campus field work as part of the major. This field work aspect emphasizes experiential learning as distinguished from experiencing. It also reintegrates the three functions of the University - learning, research, and service - by placing the student in the community or organizational situation for the purpose of generating data. Since the

faculty has a vested interest in obtaining good data, they assist the student in every way possible to learn the skills of observation, participation, and research inquiry. The service feature is accomplished as a result of the activity in which the student and the faculty have been engaged on behalf of the organization.

The third innovation in community studies is the systematization of the relationship between the university and a small number of community agencies that would not ordinarily get university resources. The program introduces students and faculty into the agencies in a staggered fashion to assure continuity and when the project is completed, the agency has a new structure and the resources necessary to continue on its own.

The field work aspect of the program comes under very careful scrutiny and supervision. No program is undertaken until it is certain that enough students will participate over a long enough period of time to guarantee a measure of continuity and stability for the community or agency. The field work program is followed by the student writing four papers on various aspects of the learning experience. The final test for the graduation of majors is the writing of a thesis that synthesizes the learning acquired in the courses and through the field work.

The new and rapidly developing program of Environmental Studies assumes that education is based on the processes of analysis and problem solving and that education must be freed from the classroom. Two small grants were obtained to launch the program the purpose of which is to provide a learning center for active undergraduate involvement. There will be few faculty members associated with the program and their role will be to assist students in the development of projects rather than to "do their own thing". The program is intended to be provocative rather than advocative in environmental matters. Programs undertaken to date by students of Environmental Studies include a workshop of 22 students under the leadership of a highly qualified member of the non-university community which is studying Santa Cruz County as an example of the problem of coastal access. The results of

the study will be presented to the State Legislature.

Last spring a similar workshop was concerned with pollution in Santa Cruz County. The students produced a beautifully printed booklet called "Santa Cruz and the Environment". When the booklet went on sale to the public, there was a tremendous outcry because local industries and county agencies were specifically cited as being contributors to environmental pollution. After the shouting and the threat of law-suits died away, the students realized that they had much to learn about being effective agents of social change. On the other hand, there has been an increased awareness of the environment and several of the industries cited in the booklet have made efforts to correct their pollutant emissions.

The curricula of the colleges vary although each new college has in some way been influenced by the pattern of the first college - Cowell. This influence is expressed in the desire to have a "theme" or area of concern around which to build a distinctive college "core" course. Cowell College has been most successful in this respect and has maintained at both the freshman and sophomore levels a required, three quarter, interdisciplinary course called "World Civilization". Many graduating seniors refer to "World Civ." as a significant aspect of their education at Santa Cruz.

There are also core courses in Stevenson College, Merrill College and College V. The Stevenson program, "Culture and Society" has been through several revisions and this year the program was reduced to the fall quarter only. Merrill has developed a non-required core course and a number of courses on different parts of the underdeveloped world. Participation in the College V "Workshops" is required of freshmen for two of the three freshman quarters. In general, the core courses have been only a partially successful vehicle to provide an identity or

integrating force in the development of the colleges. Crown College abandoned its core course after two years and now offers approximately fifty seminars based on the interests of its faculty members. Some of the seminars are interdisciplinary and are conducted by two or more faculty members from different disciplines. An artist and a psychologist offer a seminar called, "Art and the Perceptual Process". A philosopher and a psychologist offer a seminar called, "Aggression". An economist and an anthropologist offer a seminar called, "Environmental Influences on Human Characteristics". An example of faculty conducting seminars on topics that bear on their interests and expertise outside their disciplines is one called, "Enology" and is offered by a psychologist and an astronomer. (Enology, for the uninitiated, is the science of wine and wine making. The University of California has played a major role in the improvement of the California wine industry.) Each college has a few of these non-disciplinary courses or seminars even if it has a core course.

Approaches to Learning:

From its beginning in 1965, Santa Cruz has encouraged new approaches to learning. One basic approach was to make all courses equal and to make three courses per quarter the normal load. This decision permitted students to concentrate more fully on fewer courses per quarter. For external transfer purposes only the course value is identified as five quarter units. Although the campus requires by this standard the same number of units for graduation as the other campuses, stating the requirement in terms of 36 courses for the baccalaureate deemphasizes the "necessary" adding up of bits and pieces of units.

The campus has also operated under a variance from the University grading system. 2/ All students including graduates, are graded Pass/Fail plus an evaluation. A grade of pass represents clearly

2/ A more complete description of the grading system may be found in: Report on Grading at the University of California, Santa Cruz. Committee on Educational Policy, Santa Cruz Division of the Academic Senate. January 26, 1970.

satisfactory work toward the degree. Written evaluations by instructors vary from terse judgmental statements to lengthy, sometimes glowing prose. In addition to passing grades on all course work, each senior must write and pass a comprehensive examination in his major field(s) or he must submit a satisfactory thesis before graduation. The pass/fail grading frees students from the competitiveness and extrinsic motivation of letter grades and grade-point averages. The evaluation provides more, and hopefully, a better quality of feed-back to the student and a more descriptive form of information to other schools. The comprehensive examination or thesis provides an overall measure of the student's breadth, depth, and mastery of his major field(s). An academic transcript for a Santa Cruz student consists of a complete set of course grades and evaluations, or if the student wishes, only the set of course grades.

Students at Santa Cruz are encouraged to undertake studies that are not included in the course offerings of either boards of studies or colleges. At the lower division level, students may engage in "directed studies" and at the upper division levels, they may engage in "independent studies". In each case, the student has a faculty advisor or sponsor who assists in the design of the learning project. More than half of the students who have graduated from Santa Cruz have taken independent studies and almost 6% of all the course enrollments in the past two years have been independent studies enrollments.

Almost one hundred students out of 3,500 undergraduates are presently pursuing interdisciplinary major programs. These are majors which fall outside a discipline and generally involve integrating material and experiences from two or more disciplines. Students propose the intended major in writing along with a justification and rationale for the program, the courses to be taken and whether a comprehensive examination or a thesis will be included. The student must find three faculty members, at least one of whom is from his own college, who will serve on a committee to supervise the program. A sample of the majors presently being supervised includes the following: "Myth and Consciousness", "Play in Culture", "Construction of Reality", "Creativity and Consciousness", "Literature and Nature", and "Art and Social Awareness".

Field Studies and extra-mural studies are offered in four of the five colleges and by twelve of the boards of studies. Both lower division and upper division students may engage in these programs which are conducted off-campus. In some cases, the program is designed and supervised by a board of studies to provide actual experience in an aspect of the discipline. Earth Sciences, for instance, provides the opportunity to do, "geologic mapping or topical investigation of specific geologic, paleontologic, or geophysical problems conducted in the field". On the other hand, field study programs may be another form of independent study for some students or they may be campus/community projects in which students participate. Merrill College has a large program of this nature. There are seven or more continuing projects such as working with the "California Rural Legal Assistance" program in two communities, the "Student's Alternative for Youth", a program with the Santa Cruz Probation Center, and the "Seaside Education Project" of tutoring and working as teacher aids. Students may also design their own field study project. A petition to participate in the Merrill Field Programs requires the student to have a faculty supervisor and to submit a detailed proposal for the project to the Field Committee for review and approval. The number of field study enrollments on the campus during the three quarters of 1969-70 exceeded 900, about 1% of the total course enrollments.

The title "Apprentice Teacher" is used to designate a junior or senior who has designed his own course and is teaching other undergraduates. The seminars are limited to twelve students and are supervised by a faculty member. The Apprentice Teacher receives credit for his work in the design and presentation of the course and the students who enroll in the course receive credit as they would in any other course. At present students may not give more than one nor take more than one of these student led seminars. The program was reviewed at the end of its first year. The colleges reported generally favorable results and no serious problems. A total of thirteen courses were reported with an enrollment of 121 students. Examples of the course titles are: "Plant Ecology of the UCSC Campus", "The Individual and Science",

"History and Methods of Classical Horticulture", and "Expression and Structure Within the Christian Church".

The campus is well equipped and staffed in instructional media but these facilities and services have not been widely accepted at Santa Cruz to date. There is an overwhelming concern for humanizing the undergraduate's education and a fear that technology will undermine this goal. However, the campus does have extensive facilities for television and a whole range of instructional media. A thirty page catalogue of non-book media resources for individual study has been prepared for faculty and students. Of considerable interest to students presently are the new audio retrieval labs. One hundred points of access are already available in four locations on campus. A student merely dons an earphone/microphone unit and dials a program from a selected list of available programs. Current class lectures are available within 24 hours and are on the program for three days. For certain courses, a student would not have to attend classes at all but could listen to the lectures at his convenience. Televised lectures are available in the student's own room and many rooms are presently wired for eventual AM/FM radio signals and computer access.

Integrated Non-Credit Study:

Study is not restricted to credit type programs. A considerable amount of informal, non-credit study is undertaken as an outgrowth of more formal programs or through an interest in specific projects and activities.

College V has developed a number of "Guilds" which complement the art workshops of the core course and which also serve as an alternate center for art education. The guilds are student oriented and are motivated by standards of quality which are judged through public performance. Instruction is part of the program and each guild has a faculty member or community artist who serves as a resource. The Theater Guild recently presented an excellent staging of "Look Back in Anger" with the class in electronic music providing an introduction,

the Jazz Guild providing riffs throughout the production, and a member of the Theater Guild providing a photographic display of the production outside the theater. The Harpsichord Guild has undertaken the construction of a harpsichord. The Lux Nova Choir specializes in Renaissance and pre-Renaissance music and performs for a variety of campus and off-campus functions. There are about a dozen guilds active this year. They are chartered annually and their measure of success is the quality of their public performances.

Physical Education is not required of students at Santa Cruz and there is no inter-varsity athletic program yet enrollment in courses and activities is high. Programs are based on student interest and students are obviously interested. The physical education staff prepared a survey questionnaire and asked students to rank-order the programs they wanted on campus. More than two-thirds of the questionnaires were returned and the staff revised, dropped, or added programs in keeping with the survey. Student participation has doubled over last year. Emphasis is on instruction and only the best teachers are employed but there are also intermural activities, sports clubs, and life-time sports available.

Since its beginning, Santa Cruz has fostered a Garden Project which is based on a love of the earth and on organic gardening. Four acres are intensively cultivated for flowers and vegetables. Student interest in the project has been high and the current national interest in ecology and the environment has given it new status. Considered by most in the early stages to be unrelated to the academic programs of the campus, the project is now an important aspect of the environmental studies program. The activities of the garden project and academic studies are being bridged by a course for credit which is sponsored by the Environmental Studies Committee. Recently the Campus Planning Committee approved a proposal by the Garden Project and supported by the Environmental Studies Committee to develop a twenty acre "home farm". This new project will include the growth of fruit trees and other crops which are not possible in the present program.

Encouragement for Innovation:

Continuing innovation is encouraged and supported at Santa Cruz through several programs. Faculty members may submit proposals for funding by the University of California's Innovative Projects in University Instruction program. The proposals are reviewed by a University-wide committee representing all nine campuses. Each year Santa Cruz has had several innovative projects supported from this source. Projects are often based on the use of new equipment or new approaches to replace traditional methods. Other projects involve the development of specific programs to meet the needs of specific constituencies such as disadvantaged students or ethnic minorities.

A second program called Regents Undergraduate Instruction Improvement Grants is being introduced in 1971-72. This program is aimed at bringing about long-term improvements in undergraduate instruction and will be managed by the individual campuses on a matching basis.

Of greatest interest at the moment are the possibilities for new and major innovations in college programs through a substantial Ford Venture Grant that the campus has just received. The emphasis will be on the new colleges, some of which are not yet in existence, but the new ideas and programs that are generated will have an impact on those colleges already in operation. While the early colleges have been infused with innovative ideas, this is the first time that the campus has had a major grant to support the pursuit of innovations within the colleges.

Summary:

The University of California, Santa Cruz is an "idea" or environment in which many programs and practices have been revised, reinforced, or newly created. Taken as a whole, the campus itself is an innovation in public higher education. The effectiveness of the innovation has yet to be tested for its long-run effect on students. In the meantime, applicants for admission show that the "Santa Cruz Experience" is desired by four times as many students as the campus can accommodate.



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